

**Best Management Practices for
Effluent from Surface Cleaning/Washing and Water/Wet Blasting Operations
at Kennedy Space Center**

KIWI Category A.1

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1.0 Applicability

The requirements contained in this BMP apply to operations conducted on the following:

- a) Buildings and structures
- b) Non-wheeled tubebanks
- c) Washdown of Mobile Launch Platforms (MLPs) at parksites (does not include Crawler transporter).

2.0 Definitions

- a) Surface Cleaning/Washing - use of low pressure water to clean surfaces
- b) Wet Blasting - use of blast media to remove paint/coatings along with water as a dust inhibitor
- c) Water Blasting - use of pressurized water to remove paint/coatings
- d) Surface Waters - water upon the surface of the earth, whether contained in bounds created naturally or artificially, or diffused.
- e) TCLP - Toxicity Characteristics Leachate Procedure

3.0 General Restrictions

- a) No operations will directly or indirectly discharge to surface waters or wetlands.
- b) Not applicable to interiors of chemical, wastewater, and waste chemical storage tanks or pressure vessels.
- c) Not applicable to interiors or exteriors of vehicles, trucks, over-the-road trailers and tanker trucks.
- d) Not applicable to LC39A/B washdowns performed under current KSC FDEP permit conditions.
- e) No operations shall be performed where there are chemicals or materials present in the area to be washed or runoff area that may contaminate the effluent (i.e. greases/lubricants, launch fallout).

4.0 Requirements for Surface Cleaning Only

Operations for removal of dirt, mold, and mildew prior to painting or for general surface cleaning and where the existing paint/coating is in good condition are exempt from regulatory requirements provided that:

- a) Spray nozzle pressures will be adjusted to preclude paint/coating removal. If paint/coating removal cannot be prevented, then the operation must follow Requirement 5.0.
- b) Discharges must be:
 - (1) released/directed to grade without erosion to the area and without runoff to surface waters or wetland areas, or

- (2) collected and released to grade at another upland KSC site, or
- (3) collected and disposed of as industrial wastewater in a FDEP approved treatment facility.
- c) Frequency shall be no more than:
 - (1) Buildings/Fixed Structures: once per year per item unless the building/structure is undergoing major repairs, modifications, or protective coating re-application.
 - (2) Tube banks: once per six months per tube bank (once per year preferred)
 - (3) MLPs: once per launch flow
- d) Operations shall be performed with either plain potable water or potable water with biodegradable, phosphate-free detergents and/or low concentration ($\leq 5\%$) sodium hypochlorite (bleach), calcium hypochlorite or hydrogen peroxide.

5.0 Requirements for Water Blasting Operations

Operations for paint/coating removal or other corrosion control activities involving the use of water solely to prepare surfaces must meet the following regulatory criteria:

- a) Sampling -
 - (1) TCLP analysis shall be conducted on any paint film or coating where the intent of the operation is removal of the old paint or where there is the probability that paint or coatings debris will be created by the operation.
 - (2) If the coatings/paint can be proven to be non-hazardous, through process knowledge or other methods, then sampling may be disregarded
- b) Record keeping -

Analysis will be retained and available for a minimum of 3 years from the date that sample results are reported by the laboratory. Sample locations and date of collection shall also be retained with the analysis.
- c) If the TCLP Analysis **does not** exceed the limits for hazardous waste characterization, the following requirements are to be completed:
 - (1) When coatings or paint is being removed by water blasting, discharges will be screened by a 40 micron (or finer) filter mesh. Any solid waste collected will be contained and disposed of in an approved manner per KHB 8800.7C as a solid waste.
 - (2) Discharges must be:
 - (a) released/directed to grade without erosion to the area and without runoff to surface waters or wetlands, or
 - (b) collected and released to grade at another upland KSC site, or
 - (c) collected and disposed of as industrial wastewater in a FDEP approved treatment facility.
- d) If the TCLP Analysis **exceeds** the limits for hazardous waste characterization, the following requirements are to be completed:
 - (1) Water blasting operations **will not** be used to remove existing paint or coatings that fail TCLP analysis. Alternate methods will be used which ensure complete containment of paint or other coating debris. Examples include: hand scraping; chemical removal; dry abrasive blasting with full containment; or needleguns with vacuum attachments. All wastes generated by these methods will be analyzed and disposed of in an approved manner per KHB 8800.7C.

- (2) An exception to requirement 5.d)(1) is if the use of water blasting is justified by site conditions, difficulties in the logistics of traditional corrosion control techniques, or difficulties with the creation of airborne contaminants around payloads/space vehicles or other sensitive areas. In these instances, operations may be conducted per the following requirements:
 - (a) Wastestreams generated by the operation are hazardous waste and must be properly and fully contained on site and must be disposed of per KHB 8800.7C as a hazardous waste.
 - (b) An exception to the above requirement is, after containment:
 - (1) Solids may be separated from the wastestream by filtering, collected, and disposed of as hazardous waste per KHB 8800.7C.
 - (2) The filtered liquid wastestream may then be sampled for the TCLP constituent(s) that caused the coating/paint to fail the initial sampling. If the sample result for the liquid wastestream indicates that it is non-hazardous, then the water may be processed as per Requirement 5.c)(2).
 - (3) If the sample result for the wastewater indicates that it is a hazardous waste, then the water must be disposed of per KHB 8800.7C.

6.0 Requirements for Wet Blasting Operations

Operations for paint/coating removal or other corrosion control activities involving the use of water and blast media to prepare surfaces must meet the following regulatory criteria:

- a) When coatings or paint are being removed by wet blasting, discharges will be contained and screened by a 40 micron (or finer) filter mesh.
 - (1) Any solid waste collected will be contained, tested for TCLP constituents, and disposed of in an approved manner per KHB 8800.7C.
 - (2) The filtered liquid wastestream may then be sampled for the TCLP constituent(s).
 - (a) If the sample result for the wastewater indicates that it is a hazardous waste, then the water must be disposed of per KHB 8800.7C.
 - (b) If the sample result for the liquid wastestream indicates that it is non-hazardous, then the water may be discharged per the following requirements:
 - (1) released/directed to grade without erosion to the area and without runoff to surface waters or wetlands, or
 - (2) collected and released to grade at another upland KSC site, or
 - (3) collected and disposed of as industrial wastewater in a FDEP approved treatment facility.

7.0 Checklists/Pollution Incidents/Process Anomalies Reporting

- a) It is the requirement of all entities conducting business on the Kennedy Space Center to comply with this BMP to ensure that environmental regulatory officials know that KSC is complying with the law, and fulfilling its obligation to protect human health and the environment. To instill the confidence within the regulatory framework that the operations addressed in this BMP are performed correctly, it is imperative that the information provided in the KSC Environmental Checklist (KSC

Form 21-608) reflects all decision making processes for the disposition of wastestreams.

- b) Inability to meet the above general restrictions, conditions/requirements, or process anomalies which have the potential to cause environmental impacts will be resolved with the appropriate Environmental Coordinator or the Environmental checklist process. (KSC Form 21-608, or 29-874 as applicable)
- c) Spills should be reported verbally to the appropriate environmental coordinator and/or the NASA Environmental Program Office (JJ-D) within 24 hours of the incident. KSC form 21-555 "Pollution Incident Report" should be used if required. (see Environmental Objective - Pollution Incident Reporting").